DOCUMENT RESUME

ED 354 287 UD 029 045

AUTHOR Bezruczko, Nikolaus; Reynolds, Arthur J.
TITLE Schools, Families, and Children: Sixth Grade Results from the 1992 Longitudinal Study of Children at Risk. Performance Evaluation Summary.
INSTITUTION Chicago Public Schools, Ill.
PUB DATE Nov 92
NOTE 76p.
PUB TYPE Reports - Evaluative/Feasibility (142) -- Tests/Evaluation Instruments (160)

EDRS PRICE MF01/PC04 Plus Postage.
DESCRIPTORS *Black Students; Disadvantaged Youth; *Elementary School Students; Family Characteristics; Grade 6; *High Risk Students; Hispanic Americans; Intermediate Grades; *Longitudinal Studies; Public Schools; Research Methodology; School Surveys; *Student Adjustment; Telephone Surveys; Urban Schools; Urban Youth
IDENTIFIERS *Chicago Public Schools IL; *Longitudinal Study of Children At Risk IL; Parent Surveys; Student Surveys

ABSTRACT

This report describes how a longitudinal study was conducted, which examined 1,235 at-risk sixth-grade students (95 percent Black and 5 percent Hispanic) in the Chicago (Illinois) Public Schools and their schools and families. The longitudinal study traced the children's patterns of school adjustment since their enrollment in government-funded kindergarten programs in the 1985-86 school year; studied the effects of their school-based intervention experiences; and assessed the effects of family, school, and individual factors on children that are open to educational alteration. Development, distribution, and collection of survey forms; telephone follow-up of mailed surveys; and data preparation and analyses are described. Data collected included: teacher ratings of children's competence and problem behaviors; children's ratings of their attitudes and behavior in and out of school; field observations of classrooms, children, and teachers; telephone interviews with parents; standardized school achievement test scores; and school records concerning grade promotion, special education placement, and mobility. Additional sections describe procedures used for each data collection effort. Appendix A summarizes data collected from 1985 through 1992. Appendix B includes the seven study instruments. Appendix C presents a report on a study completed in 1991-92 using data from the longitudinal study. (JB)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED354287

Schools, Families, and Children: Sixth Grade Results From the 1992 Longitudinal Study of Children at Risk

Performance Evaluation Summary

Department of Research, Evaluation and Planning

Prepared by Nikolaus Bezruczko and Arthur J. Reynolds

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY
F. Schuster
TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)
☒ This document has been reproduced as received from the person or organization originating it.
☐ Minor changes have been made to improve reproduction quality.
• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

TED D. KIMBROUGH
General Superintendent of Schools

CHICAGO PUBLIC SCHOOLS

November 1992

UD029045

Performance Evaluation Summary

Table of Contents

	Page
Study Sample	1
Attitude and Opinion Surveys	2
Classroom Observation and Teacher and Child Interviews	3
Parent Telephone Interviews	4
Standardized Achievement Testing	4
Summary of School Characteristics	5
References	6
Appendix A: Data Collected in the Longitudinal Study	7
Appendix B: Instruments Used in the Longitudinal Study	-
Appendix C: Studies Completed in 1991-1992	-

Schools, Families, and Children: Sixth Grade Results From the 1992 Longitudinal Study of Children at Risk

Performance Evaluation Summary

In 1992, researchers in the Longitudinal Study of Children at Risk collected the following data:

- Teacher ratings of children's competence and problem behaviors
- Children's ratings of their attitudes and behavior in and out of school
- Field observations of classrooms, children, and teachers
- Telephone interviews of parents
- Standardized school achievement test scores
- School records concerning grade promotion, special education placement, and mobility.

In addition to these data, results from the State Report Card for 1990-1991 (Chicago Public Schools, 1991) were obtained for analysis.

The development of instruments and observation materials, procedures for their administration, and the success achieved in their collection are described below. Appendix A provides a cumulative summary of data collected in the longitudinal study. Appendix B includes copies of the instruments. Appendix C includes copies of studies completed in 1991-1992 using data from the longitudinal study.

The overall goals of the longitudinal study are to trace children's patterns of school adjustment over time, investigate the effects of their school-based intervention experiences, and (c) to assess the effects of family, school, and individual factors on children that are open to educational alteration.

Study Sample

The study sample for this sixth grade year (1991-1992) included 1235 children who were active in the Chicago Public Schools at the end of the school year. They were enrolled in 295 schools throughout the city. These low-income, mostly black children (95% black, 5% Hispanic) have been followed since their enrollment in government-funded kindergarten programs in the 1985-1986 school year.

Attitude and Opinion Surveys

Populations sampled for the surveys. Children (N = 1,235) who graduated from Child Parent Centers in 1986 and their classroom teachers (N > 800) during the

1991-1992 school year were sent standard forms that surveyed their attitudes and opinions concerning school and learning.

Development of survey forms. The following survey forms were sent to teachers and children: 1992 Followup Teacher Survey (TSURVEY92), 1992 Followup Child Survey (CSURVEY92), and Teacher-Child Rating Scale (T-CRS; 1991). The TSURVEY92 and CSURVEY92 were developed by the principal investigator and printed at the Chicago Board of Education and ask for information concerning children's achievement, adjustment, and motivation.

T-CRS forms were purchased from Primary Mental Health Project, Inc. (1991). It surveys teachers' opinions concerning children's competence and problem behaviors in school and is normed on an sample of urban school children.

Distribution and collection of survey forms. All survey forms were mailed from the Chicago Board of Education Department of Research, Evaluation and Planning to classroom teachers in 295 schools during May 1992. The classroom teachers completed the TSURVEY92 and T-CRS, distributed and collected student surveys, and returned the completed forms to the Bureau of Program Evaluation. By the end of May 1992, completed surveys began arriving in the Bureau of Program Evaluation.

Telephone followup of mailed surveys. By the end of May, 1992, approximately 50% of the surveys had been completed and returned. The research team then began to call school principals to personally describe the study to them and impress upon them the importance of survey's results to the Chicago Public Schools (CPS). In general, the principals agreed to encourage their teachers to complete and return the forms. The final survey return rate was 66% (n = 813).

Data preparation and analysis. In July, 1992, the collected forms were electronically scanned by the CPS Bureau of Student Testing and the survey responses written to a 5 1/4 inch floppy diskette for processing by tabletop computers.

The principal investigator conducted preliminary analyses of the survey responses and prepared system files for use by the research team. During July and August 1992, the principal investigator computed frequencies that were used to prepare the summaries that will be presented in the project report (Reynolds, Bezruczko, Mavrogenes, & Hagemann, 1992).

Classroom Observation and Teacher and Child Interviews

During 1992 researchers collected observations of the classrooms and schools, and conducted interviews with children and their teachers.

Schools sampled for the interviews. Thirty-six schools were selected for observations. Because the longitudinal sample in 1991-1992 was enrolled in approximately 295 Chicago elementary schools and frequently only one or two children in a school, twenty-seven schools were randomly sampled for observation. An additional eight schools were selected because they represented the largest concentration of children in the study, and they are of particular interest because they are the least mobile members of the population.

Observations and interviews. Sixty-one classrooms were observed in these schools. At least one classroom was observed with a child in the longitudinal study. In the other eight schools, several classrooms were observed because they enrolled a greater number of children in the longitudinal study.

In every observed classroom one or more children in the study was interviewed for a total sample of 84 children. The teacher of every observed classroom was also interviewed.

Development of standard observation and interview forms. During November and December 1991, four forms were developed by the research team at the Bureau of Program Evaluation (a) Child Interview, (b) Teacher Interview, (c) Classroom Observation, and (d) Neighborhood Observation form.

Procedures followed. In November 1991, letters from the Chicago Board of Education were sent to principals in the schools that were selected for observation. The purpose of the study, the need for field observations and interviews, and the importance of the results were described to the principals. Beginning in December, 1991, telephone calls were made to these principals to remind them of the study and our desire to visit the schools. With the exception of one school, no dates were provided for the visit and none of the principals or teachers were permitted to review the observation and interview forms.

In January 1992, two teams of two persons began collecting field observations. Each team arrived at a school approximately at 8:30 A.M., briefly met with the principal, and located the classroom to be observed. An observation lasted between 30 and 40 minutes. Sometime during the observation arrangements were made to separately interview the teacher and the child. In all cases, the interviews were held privately in an office or unoccupied classroom. On occasion interviews were conducted in corridors or hallways.

Dates of observations. Field observations were undertaken in January 1992 and completed in April. With one exception, all schools cooperated.

Data preparation and analysis. The observation forms were collected from evaluators and edited, coded, and punched for computer analysis by the CPS Bureau

of Program Evaluation. A SPSS system file was created of the coded field observations.

All statistical analyses were conducted using Statistics Package for the Social Sciences Version 3.00 (SPSS^{X}, 1983).

Parent Telephone Interviews

Parent population. To obtain more comprehensive data on children's families, 671 parents who did not respond to parent survey questionnaires in 1988 and 1990 were the target sample for telephone interviews conducted in the spring and summer of 1992.

Development of standard interview form. The Survey Research Laboratory at the University of Illinois was contracted to conduct telephone interviews. The interview form was adapted from the 61-item 1990 Parent Survey questionnaire. Relevant items included family demographics such as education, income, family structure, economic hardships as well as detailed information about their attitudes toward their child's education and their interactions with them.

Procedure. After preparation of the interview form, the protocol was pilot tested with a sample of 25 parents. Interviews of the full sample then commenced with up to 10 call backs per completed interview. Interviews averaged from 35 to 45 minutes in length.

Completed calls. There were 258 completed interviews, which were 38.4% of the original sample. Most of the noncompleted interviews were due to unable to locate (n = 355). These parents may move frequently or may not have access to a telephone. Because the original sample of 671 parents was already hard-to-reach, the remaining nonresponding parents reflect truly hard-to-reach parents.

Standardized Achievement Testing

In April 1992, all children were administered the Iowa Tests of Basic Skills (ITBS; Hieronymus, Lindquist, & Hoover, 1980) as part of the Chicago Public School's annual testing program. The ITBS is a nationally standardized achievement test. Form H Level 11 or 12 in reading and mathematics was administered based on the 1988 normative sample.

Sample tested. All Chicago elementary students (N = 410,000) were required to participate in the ITBS testing.

Procedures followed. In March 1992, ITBS test forms were delivered to school principals. School personnel other than classroom teachers responsible for the

respective areas tested, such as counselors, assistant principles, principles, conducted the testing between March 23 and March 27 with make-ups due to absence the following week.

Scanning of item responses and preparation of data files. Schools returned the student answer sheets to the Bureau of Student Testing where they were electronically scanned. Technicians prepared a computer tape of the scores and matched a file of identification numbers of the longitudinal sample against the ITBS tape. ITBS test scores for the longitudinal sample were then copied to a 5 1/4 inch floppy diskette. A SPSS system file was created of the ITBS scores for processing on table top computers.

Summary of School Characteristics

In 1985, the State of Illinois General Assembly adopted a program of accountability in which all schools in the state reported key information for a comparative statewide summary. Four categories a) student characteristics, b) instructional resources, c) financial information, and d) student performance are to be made available to the public. This information is presented in the State Report Cards for 1990-1991 (1991).

As reported above, study children enrolled in 295 elementary schools in the 1991-1992 school year. All 10 public school districts were represented but children predominated in schools south of the city. In kindergarten (1985-1986) they enrolled in 26 schools. Mean school characteristics in 1992 were as follows:

School size = 682 students
Class size in Grade 6 = 26.6 students
Low-income families = 83.7% of families
Percent Black = 72.6
Percent Hispanic = 18.0
Percent White = 7.9
School mobility rate = 36.2% annually
Per-pupil expenditures = $4,000 annually
ITBS reading performance = 20.4% at/above national average
ITBS mathematics performance = 26.6% at/above national average.

References

Chicago Public Schools. (1991). The state report card for 1990-1991: An analysis of the first six years. Chicago: Author.

Hieronymus, A.N., Lindquist, E.F., & Hoover, H.D. (1990). Iowa Test of Basic Skills: Primary battery. Chicago: Riverside.

Reynolds, A. J., Bezruczko, N., Mavrogenes, N. A., & Hagemann, M. (1992). Schools, families, and children: Sixth grade results from the 1992 Longitudinal Study of Children at Risk.

SPSS^{x}. (1983). Statistical Program for the Social Sciences. Chicago: SPSS Inc.

T-CRS. (1991). Teacher-Child Rating Scale. Rochester, NY: Primary Mental Health Project, Inc.

Appendix A

DATA COLLECTED IN THE LONGITUDINAL STUDY: 1985-1992

Cumulative Data Collection in the Longitudinal Study of Children at Risk

Instrument	Kindergarten		Year 1	Year 2	Year 3	Year 4	Year 5a	Year 6
	Fall 1985	Spring 1986	Spring 1987	Spring 1988	Spring 1989	Spring 1990	Spring 1991	Spring 1992
Standardized test scores[b]	X	X	X	X	X	X	X	X
Teacher surveys		X	X	X	X	X	X	X
Parent surveys				X		X		X
Child surveys					X	X	X	X
Classroom obs and interviews								X
School records	X	X	X	X	X	X	X	X

Note. Bolds indicate data collected for the purposes of this report. N's range from 809 to 1,263 for the teacher surveys, from 487 to 501 for the parent surveys, from 799 to 1,040 for the student surveys, and from 1,102 to 1,531 for the ITBS scores. Construction and administration of surveys was conducted by the Department of Research and Evaluation of the Chicago Public Schools.

[a]During Year 4 and Year 5, the parent survey was supplemented with phone interviews.

[b]All scales of the ITBS were administered.

Appendix B

INSTRUMENTS USED IN THE LONGITUDINAL STUDY

LONGITUDINAL STUDY OF CHILDREN AT-RISK

Chicago Public Schools
Department of Research, Evaluation and Planning

6TH YEAR CLASSROOM OBSERVATION FORM 1991-1992

Unit number _____ School_____ Room_____

Number of students present _____ Number of students in the study present _____ Time observation began: _____ Length of observation: _____ minutes.

General observations

Schoolwide
1. Note the level of order and discipline in the school. When walking down hallways look into classrooms. Are children running around the rooms or are they engaged in learning activities?

Target classroom
2. Every 10 minutes note how many children are not on task.

- Are there children's writing compositions displayed around the room? How many? Do these seem to be free writing or on assigned topics?

Motivation System Used by Teacher (check list)

3. Extrinsic

____ star chart

____ points for positive behavior

____ smiling faces/stickers/ stamps

____ competition/contest individual and group

____ assertive discipline (checks for negative behavior)

____ Pizza Hut contest

____ physical punishment

____ threats

____ praise

Other:

4. Intrinsic (describe)

____ interesting work - child finds satisfaction in it

____ free choice - child decides what to do

____ group participation to help group achieve school tasks

____ authentic real-life tasks

____ encouragement leading to continuation of task and improvement

Other:

Interactions Among Target Child, Classmates, and Teacher
(Describe how often and how long these interactions occur.)

Individual help:

Listening/accepting:

Putting down:

Ignoring:

Touching:

Compliments:

Isolation:

Raised voice or screaming:

Cooperative learning:

Other:

Teacher Instruction (narrative)

The purpose of this narrative is to describe what's going on in the classroom during the observation. Be sure and address the following questions.

- What are the teacher, children, and aide (if available) doing?

- Include whether there are small groups, direct instruction, whole-group activities, independent study, seat work, review, any innovative techniques, or extraordinary conditions.

- What time did an activity begin and when did a new activity begin. (Write the times in the left margin. Include transitions.)

Be specific about what kind of work is going on. Also note whether anything is particularly unusual or exceptional about this teacher and classroom from others that you have seen.

(narrative-continued)

LONGITUDINAL STUDY OF CHILDREN AT-RISK

Chicago Public Schools
Department of Research, Evaluation and Planning

6TH YEAR TEACHER INTERVIEW FORM 1991-1992

Unit number _____ School_____ Room_____

Date _____

View of the School

1. How long have you taught here? Do you enjoy teaching at this school?

2. What are the major problems that your school faces?

3. What are the strengths of this school?

Description of Class

4. Describe how this child (these children) perform in your class and interact with peers. Do you know anything about the home environment?

5. Is this class ability-grouped? Which ability level is it?

high _____ medium _____ low _____

6. Are most of your students performing at grade level? If not, why not? What could be done to help them?

Educational Leadership

7. Are you satisfied with the direction your school is taking? Does your school have a mission? What specific goals does your school strive to achieve (e.g., test scores, curriculum objectives, attitude, citizenship, etc.)?

8. Do the teachers in your school work together to solve problems or do you work independently of each other?

9. Do you and your fellow teachers participate in making school decisions?

10. Does your principal provide strong leadership for your school? If so, how?

11. Who or what is your greatest resource when you are trying to solve a problem?

Writing Instruction [The following questions pertain only to home-schools.]

12. Ask to see writing folders. How many pieces are in them? Describe the kinds of pieces.

13. How do you teach writing mechanics and grammar? How much emphasis is there on these?

14. We know that students are supposed to learn to write. How do you help them accomplish this? How often do they write?

15. What kind of reading program do you use?

- basal
- worksheets/dittos
- whole language (children's literature)
- other

LONGITUDINAL STUDY OF CHILDREN AT-RISK

Chicago Public Schools
Department of Research, Evaluation and Planning

6th YEAR CHILD INTERVIEW FORM 1991-1992

Unit number_____ School_____ Room_____

Child's name_____ ID_____

---

1. Tell me what you can remember about kindergarten.

2. On which school subjects (reading, writing, math, social studies, etc) do you try the hardest? If they try hard, why? (Get details concerning what motivates them to try hard in school!)

3. What do you do after school?

4. Tell me about your neighborhood. Describe it for me. Are you out much? Is it safe?

5. What do you and your family do together?

6. What does your family do for you?

- help that they give you
- places that you go together
- things that they buy for you
- feelings that you have for them

7. Who helps you the most when you want to do something?

8. Not counting school trips, how far away from home have you been and how often? Do you know how to ride on public transportation? Have you been to the following:

	With family	With school
- Watertower	_____	_____
- Sears Tower	_____	_____
- Harold Washington Library	_____	_____
- Museum of Science and Industry	_____	_____
- DuSable Museum of Art & History	_____	_____
- Loop	_____	_____
- Lincoln Park Zoo	_____	_____
- Shedd Aquarium	_____	_____

Where have you been outside of Chicago?

9. Tell me about the best thing that ever happened to you?

10. Tell me about the worst thing that ever happened to you?

11. What do you and your friends like to do together? Do you see them when you are not in school? How often? Where do you and your friends like to go? Do your friends do well in school?

12. Please name the adults in your home and their occupations.

13. Who is the most important person in your life? Why?

14. How do you get money to spend on things that you want to buy? How much money do you spend in a week. What do you like to buy?

15. Do you attend church? Do you go with your family? What do they talk about in church?

16. What do you want to do when you grow up?

17. What hand do you write with? right _____ left _____
[Please confirm this with the teacher or by observation.

LONGITUDINAL STUDY OF CHILDREN AT-RISK

Chicago Public Schools
Department of Research, Evaluation and Planning

NEIGHBORHOOD OBSERVATION FORM 1992

Child's name_____ ID_____

Home address _____Unit number_____

School_____ Room_____

Directions: Please complete the following checklist concerning neighborhoods that you observe. Be sure to indicate whether the children you interview actually live in a neighborhood that you observe.

I. General observations

Streets and sidewalks

___ Groups of men standing on sidewalks
___ Garbage cans on sidewalks or streets
___ Litter or trash on sidewalks or streets
___ Iron guards over windows and/or folding steel gates across doors or windows
___ Display of seasonal decorations

Public facilities (bus stops, EL stations, bridges, streets, street lamps, guard railings, etc)

___ rusted ___ needs paint ___ needs repair ___ old & rundown

Condition of parked cars

___ old rusted models ___ damaged bodies ___ abandoned cars

Ethnic composition

___% Black ___% Hispanic ___% Asian ___% White

II. Buildings

General condition of buildings and grounds

___ peeling paint ___ tuckpointing needed ___broken glass

___ yards with weeds ___ uneven, cracked, and broken

___ litter in yards ___ boarded up windows ___ windows bricked over
___ burned out buildings ___ buildings with KEEP OFF signs

___ bills have been posted by the health and/or sanitation departments

___ undeveloped vacant lots

___ abandoned buildings

Residential

___ single family (detached structure with lawns and shrubs)

___ apartment buildings (5 or more floors)

___ privately owned or leased apartments with modern facilities

___ public housing project

___ walkup apartment buildings (4 stories or less)

___ private

___ public housing

Buildings near the residential neighborhood

___ churches ___ banks ___ factories ___ gas stations

___ schools ___ parks ___ playgrounds ___ funeral homes

___ hospital ___ library ___ museum ___ major city street

Commercial

Type of enterprises

___ clothing retailer ___ small grocery stores ___ liquor

___ liquor ___ jewelry stores ___ newspaper vendors

NEIGHBOR.W51 010792

Teacher-Child Rating Scale (T-CRS

COPYRIGHT© 1991 BY PRIMARY MENTAL HEALTH PROJECT, INC.
ALL RIGHTS RESERVED.

STUDENT I.D. NUMBER

RACE
White 1-6
Black 0-10
Nat. Amer.
Asian 0-7
Hispanic
Other

GRADE
PRE-SCH.
KIND.
01-10 1ST.
02-20 2ND.
3RD.
NULT 4TH.
99 5TH.
6TH.
SPEC. ED.
OTHER

CHILD'S NAM_____
(LAST) (FIRST)

TEACHER _____ SCHOOL _____

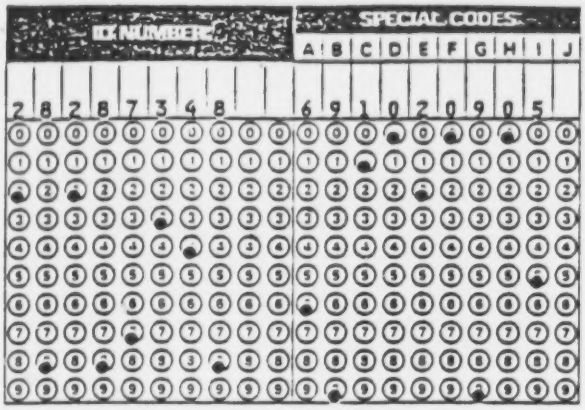
SEX 1,2,3 6,9

TODAY'S DATE 6 / 2 / 92
MONTH DAY YEAR

Initial Final Screening

I. Please rate this child on the following: 1-5	Not a Problem	Mild	Moderate	Serious	Very Serious Problem
1. Disruptive in class					
2. Withdrawn 0,7					
3. Underachieving (not working to ability)					
4. Fidgety, difficulty sitting still					
5. Shy, timid					
6. Poor work habits					
7. Disturbs others while they are working					
8. Anxious, worried					
9. Poor concentration, limited attention span					
10. Constantly seeks attention					
11. Nervous, frightened, tense					
12. Difficulty following directions					
13. Overly aggressive to peers (fights)					
14. Does not express feelings					
15 Poorly motivated to achieve					
16. Defiant, obstinate, stubborn					
17. Unhappy, sad					
18. Learning academic subjects					

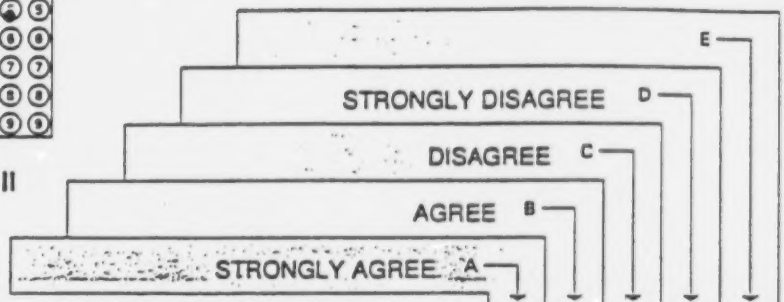
II. Please rate the following items according to how well they describe the child:	Not at All	A Little	Moderately Well	Well	Very Well
1. Accepts things not going his/her way					
2. Defends own views under group pressure					
3. Completes work					
4. Has many friends					
5. Ignores teasing					
6. Comfortable as a leader					
7. Well organized					
8. Is friendly toward peers					
9. Accepts imposed limits					
10. Participates in class discussions					
11. Functions well even with distractions					
12. Makes friends easily					
13. Copes well with failure					
14. Expresses ideas willingly					
15. Works well without adult support					
16. Classmates wish to sit near this child					
17. Tolerates frustration					
18. Questions rules that seem unfair/unclear					
19. A self-starter					
20. Well liked by classmates					



1992 FOLLOW-UP STUDENT SURVEY

Bureau of Program Evaluation
Research, Evaluation and Planning
1819 West Pershing Road 4W(n)
Chicago, Illinois 60609

GENERAL PURPOSE DATA SHEET II
form no. 19542



DIRECTIONS: Read each sentence and darken the answer that is true for you.

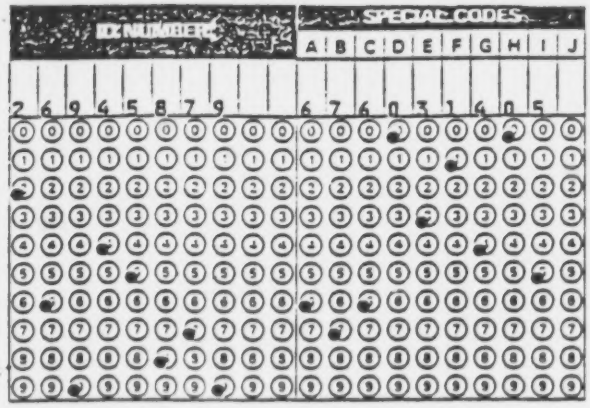
1. I try hard in school.
2. I like school.
3. I get in trouble at school.
4. I get bored in school.
5. I am smart.
6. School is important.
7. I get good grades in school.
8. When in school, I would rather be someplace else.
9. My classmates like me.
10. I give up when school work gets hard.
11. I get along well with others.
12. I do better in school than my classmates.
13. I like myself.
14. I do my homework.
15. My teacher expects me to do well in school.
16. I answer questions in class.
17. I enjoy composition writing.

18. My parent thinks education is not very important.
19. My parent expects me to go to college.
20. My parent asks me a lot of questions about school.
21. My parent makes sure I do my homework.
22. My parent does things at school.

The questions below are about your class and school.

23. There are many disruptions in this class.
24. My teacher will go out of his/her way to help me.
25. A lot gets done in my class.
26. My school is clean and well-maintained.
27. I feel that I belong in this school.
28. Student misbehavior is a major problem in this school.
29. A lot of good students go to this school.
30. I feel safe coming to and going home from this school.
31. A lot is expected of me in this school.
32. How many times have you changed schools since the beginning of this school year? (Use A = none, B = 1, C = 2, D = 3 or more)
33. How honest were you in filling out this survey? (Use A = very honest, B = fairly honest, C = honest once in a while, D = not very honest).

NCS Trans-Optik® MP30-19542-2120
© 1985, 1988, National Computer Systems, Inc. All rights reserved. Printed in U.S.A.



1992 FOLLOW-UP TEACHER SURVEY

Bureau of Program Evaluation
Research, Evaluation and Planning
1819 West Pershing Road 4W(n)
Chicago, Illinois 60609

GENERAL PURPOSE DATA SHEET II
form no. 19542

USE NO. 2 PENCIL ONLY

	A	B	C	D	E
	EXCELLENT / MUCH	ABOVE AVERAGE / GOOD	AVERAGE / SATISFACTORY	BELOW AVERAGE / SOME	POOR / NOT AT ALL

DIRECTIONS: Please rate the above named child on the characteristics listed below.

1. Concentrates on work
2. Follows directions
3. Is self-confident
4. Participates in group discussions
5. Gets along well with others
6. Takes responsibility for actions
7. Parent participates in school activities
8. Comprehends what is read
9. Able to write well-organized compositions
10. This child's final grade in reading (Use E to indicate F)
11. This child's final grade in math (Use E to indicate F)
12. Number of absences during this school year?
    (Use A = 0 to 3, B = 4 to 7, C = 8 to 12, D = 13 to 20, E = more than 20)
13. Parent picked up one or more report cards (Use A = yes, B = no)

Please respond to the following class-level information.

For items 14-18 use:
A = high, B = moderately high, C = average, D = below average, E = poor

14. Rate the average ability level of this child's class.
15. In this class, student discipline is a major problem.
16. In this class, students work well with each other.
17. In this school, student misbehavior is a major problem.
18. Parents work well with teachers in this school.

19. IF THIS CHILD HAS EXHIBITED ANY DELINQUENT BEHAVIOR, IN OR OUT OF SCHOOL, PLEASE DESCRIBE WITHIN AREA 1 ON THE BACK OF THIS SHEET.

PLEASE TURN OVER

NCS Trans-Optic® MP30-19542-2120 © 1985, 1988 National Computer Systems, Inc. All rights reserved Printed in U.S.A.

5/4/92

CHICAGO PUBLIC SCHOOLS
PARENT FOLLOW-UP SURVEY

Survey Research Laboratory
University of Illinois

Case ID # _____	v1
SRL Study # 713	v2
Interviewer # _____	

TIME INTERVIEW BEGAN: ____ ____: ____ ____ (24-hour clock)

Hello, my name is _____ and I'm calling from the Survey Research Laboratory of the University of Illinois. May I speak to (PARENT'S FULL NAME)? The Chicago Public School system has asked us to conduct a survey of parents' opinions about their local school. Your name has been randomly selected for the study.

Blank variable 1 v3

Some of our questions will relate to you and (CHILD'S FULL NAME).

1. How are you related to (CHILD'S FIRST NAME)? Are you (his/her) (mother/father), legal guardian, or someone else? v4

Mother 1

Father 2

Female other (SPECIFY RELATIONSHIP) . 3

_____

Male other (SPECIFY RELATIONSHIP) . . 4

_____

2a. Did (CHILD'S FIRST NAME) attend any school before kindergarten, for example, Head Start or a Child-Parent Center? v5

Yes . . . . . P

No . . . . . 3 -->(SKIP TO Q.3)

DON'T KNOW . . . . . 8 -->(SKIP TO Q.3)

2b. How long did (he/she) attend this school?

One year 2

Two years 1

DON'T KNOW 8

2c. Was this a preschool in the Chicago Public School system? v6

Yes 1

No 2

DON'T KNOW 8

3. Including kindergarten, how many schools has (CHILD'S FIRST NAME) attended?

____v7____ sch

DON'T KNOW . . . . . .

4. How many times have you and (CHILD'S FIRST NAME) moved to another hom since (he/she) has been in kindergarten?

____v8____ ti

5. Now I am going to read a list of statements about children and school. For each, please tell me if you strongly agree, agree, disagree, or strongly disagree.

	Strongly agree,	Agree,	Disagree,	Strongly disagree?
a. I like going to (CHILD'S FIRST NAME)'s school. Do you	4	3	2	1
b. School is important for getting a good job. Do you	4	3	2	1
c. I like helping (CHILD'S FIRST NAME) with school work	4	3	2	1
d. (CHILD'S FIRST NAME)'s school does a good job of informing me about school events	4	3	2	1
e. (CHILD'S FIRST NAME) tries hard in school	4	3	2	Blank variable 2 1
f. (He/She) is happy in school	4	3	2	1
g. School reform will help improve the education (CHILD'S FIRST NAME) receives	4	3	2	1

6. How often do you . . .

	Never,	Once a month,	Once a week,	2 or 3 times a week, or	Nearly every day?	
a. Read to (CHILD'S FIRST NAME)? Would you say	1	2	3	4	5	v16
b. Cook with (CHILD'S FIRST NAME)? Would you say	1	2	3	4	5	v17
c. Help (him/her) with homework?	1	2	3	4	5	v18
d. Read the newspaper with (CHILD'S FIRST NAME)?	1	2	3	4	5	v19
e. Discuss school progress with (CHILD'S FIRST NAME)?	1	2	3	4	5	v20
f. Help in (CHILD'S FIRST NAME)'s classroom?	1	2	3	4	5	v21

7. How often does (CHILD'S FIRST NAME) . . .

	Never,	Once a month,	Once a week,	2 or 3 times a week, or	Nearly every day?	
a. Go to the library? Would you say	1	2	3	4	5	v22
b. Read books for pleasure? Would you say	1	2	3	4	5	v23
c. Write stories or notes?	1	2	3	4	5	v24
d. Play with school friends?	1	2	3	4	5	v25
e. Stay home from school?	1	3	3	4	5	v26

8. How often do you . . .

	Never,	Sometimes, or	Often?	
a. Praise (CHILD'S FIRST NAME) for improving in school? Would you say	1	2	3	v27
b. Limit (CHILD'S FIRST NAME)'s TV time? Would you say	1	2	3	v28
c. Encourage (him/her) to do well in school?	1	2	3	v29
d. Encourage (him/her) to behave in school?	1	2	3	v30
e. Take (CHILD'S FIRST NAME) to a museum, zoo, planetarium, or aquarium?	1	2	3	v31
f. Talk to a teacher about (CHILD'S FIRST NAME)'s progress?	1	Blank variable 3	3	v31a v32
g. Participate in (CHILD'S FIRST NAME)'s school activities?	1	2	3	v33
h. Get invited to attend (CHILD'S FIRST NAME)'s school events?	1	2	3	v34
i. Take (CHILD'S FIRST NAME) on trips to other cities?	1	2	3	v35

9. How often does . . .

	Never,	Sometimes, or	Often?	
a. A brother, sister, or another adult help (CHILD'S FIRST NAME) with school work? Would you say	1	2	3	v36
b. (CHILD'S FIRST NAME) get in trouble at school?	1	2	3	v37
c. (CHILD'S FIRST NAME) try to please you?	1	2	3	v38

10. How many years of school do you think (CHILD'S FIRST NAME) will complete? v39

Elementary (Grade 8 or less)	1
Some high school (9, 10, or 11)	2
High school diploma (12)	3
Some college (13, 14, or 15)	4
Bachelor's degree (16)	5
Some graduate school	6
Graduate or professional degree	7
DON'T KNOW	8

11. How much influence do you have on (his/her) success in school? Would you say . . . v40

A lot of influence, ...	1
Some influence, or	2
Not much influence?	3
DON'T KNOW	8

12. How satisfied are you with the quality of education (CHILD'S FIRST NAME) has received at school? Are you . . . v41

Very satisfied, ...	1
Satisfied, ...	2
Unsatisfied, or	3
Very unsatisfied?	4
NOT SURE/DON'T KNOW	5

13. Are you currently a member of . . .

	Yes	No	
a. The ECIA Council? (Education Consolidation and Improvement Act)	1	2	v42
b. A Local School Council?	1	2	v43
c. The PTA or another school group?	1	2	v44
d. A community organization?	1	2	v45
e. A church or religious group?	1	2	v46
f. A political organization?	1	2	v47
		Blank variable 4	v47a

14. Have you attended any Local School Council meetings? v48

Yes 1

No 2

15. Did you vote in your 1989 Local School Council election? v49

Yes 1

No 2

DON'T REMEMBER 8

16. All of us have problems in everyday life. Please tell me if you have had any of the following problems. (ASK a AND b FOR EACH ITEM BEFORE GOING ON TO THE NEXT ITEM.)

a. (READ ITEM) Is this a problem for you at present?

b. Has (ITEM) been a problem for you in the past?

		a. Present? Yes	No		b. Past? Yes	No	
1)	Having enough money to buy food	1	2	v62	1	2	v50
2)	Paying the rent or mortgage	1	2	v63	1	2	v51
3)	Paying gas or electric bills	1	2	v64	1	2	v52
4)	Paying medical bills	1	2	v65	1	2	v53
5)	Having enough money for new clothes	1	2	v66	1	2	v54
6)	Finding a good job	1	2	v67	1	2	v55
7)	Finding a safe place to live	1	2	v68	1	2	v56
8)	Finding the right school for (CHILD'S FIRST NAME)	1	2	v69	1	2	v57
9)	Communicating with (CHILD'S FIRST NAME)'s school	1	2	v70	1	2	v58
10)	Transportation	1	2	v71	1	2	v59
11)	Getting (CHILD'S FIRST NAME) to try hard in school	1	2	v72	1	2	v60
12)	Getting (CHILD'S FIRST NAME) to behave at home	1	2	v73	1	2	v61

17. Finally, I'd like to ask you some background questions about yourself to help us analyze your answers along with the answers of others.

In what year were you born? 19 ___v74___

18. Are you now . . .

Married, ... 2
Widowed, ... 5
Divorced, ... 3
Separated, or 4
Have you never been married? 1
Blank variable 5

19. Do you own or do you rent your home?

Own 1
Rent 2
Other (SPECIFY) 3

_____

20. How long have you lived at your present address?

___v77___ years ___v78___ months

21a. Including yourself, how many people currently live in your household?

_____ people
(IF "1", RECORD R's NAME, GENDER, AND AGE UNDER Q.21b, Q.21d AND Q.21e AND SKIP TO Q.22)

21b. Starting with yourself, would you please tell me the first name of each of these people. (RECORD BELOW.) I have listed (READ NAMES). Is there anyone I've left out, such as babies, lodgers, or boarders who usually live there, anyone else who usually lives there but who is now away at school, traveling, or in a hospital, or anyone else staying here?

21c. How is (NAME) related to (CHILD'S FIRST NAME)?

21d. (RECORD GENDER OF EACH PERSON LISTED. ASK ONLY IF NECESSARY.)

21e. How old [(were you/was (NAME)] on (your/his/her) last birthday?

21b. Name	21c. Relationship to CHILD	21d. Gender M	21d. Gender F	21e. Age (On last birthday)
_____	RESPONDENT	1	2	_____
_____	CHILD	1	2	_____
_____	_____	1	2	_____
_____	_____	1	2	_____
_____	_____	1	2	_____
_____	_____	1	2	_____
_____	_____	1	2	_____
_____	_____	1	2	_____

22. What is the highest grade or year of school you have completed? v79

None 1

Some grade school (Grade 7 or less) 2

Completed grade 8 3

Some high school (9, 10, or 11) . . 4

High school diploma (12) 5

Some college (13, 14, or 15) . . . 6

Bachelor's degree (16) 7

Some graduate school 8

Graduate or professional degree . . 9

23a. Are you currently . . . v81

Employed full time, ... 1 -->(SKIP TO BOX BELOW)

Employed part time, or . . . . . 2 -->(SKIP TO BOX BELOW)

Not employed at all? 8

23b. Are you . . .

Retired, ... 5

Disabled, ... 3

Temporarily unemployed, ... 4

Keeping house full-time, or 6

Something else? (SPECIFY) 7

_____

_____

IF R IS THE ONLY ADULT 18 YEARS OLD OR OVER LIVING IN THE HOUSEHOLD, SKIP TO Q.26a.
OTHERWISE ASK Q.24 AND Q.25 FOR THE FIRST OTHER ADULT LISTED ON HOUSEHOLD CHART.

24. What is the highest grade or year of school (CHILD'S FIRST NAME)'s (RELATIONSHIP) has completed?

v80

None 1

Some grade school (Grade 7 or less) 2

Completed grade 8 3

Some high school (9, 10, or 11) . . 4

High school diploma (12) 5

Some college (13, 14, or 15) . . . 6

Bachelor's degree (16) 7

Some graduate school 8

Graduate or professional degree 9

25a. Is (CHILD'S FIRST NAME)'s (RELATIONSHIP) currently . . . v82

Employed full time, ... 1 —>(SKIP TO Q.26a)

Employed part time, or . . . . . 2 -->(SKIP TO Q.26a)

Not employed at all? 8

25b. Is (he/she) . . .

Retired, ... 5

Disabled, ... 3

Temporarily unemployed, ... 4

Keeping house full-time, or 6

Something else? (SPECIFY) 7

_____

_____

26a. Was (CHILD'S FIRST NAME) eligible for free or reduced lunches this year? v83

Yes 1

No . . . . . 3 -->(END INTERVIEW)

26b. Was it for . . .

Free lunch, or 1

Reduced lunch? 2

Thank you very much for your cooperation.

TIME INTERVIEW ENDED: ____ ____: ____ ____ (24-hour clock)

Interviewer comments: _____

_____

_____

_____

_____

Number of female adults in your home v84

Number of male adults in your home v85

Number of children under 18 in your home v86

SRL Coder identification number v87

Appendix C

STUDIES COMPLETED IN 1991-1992 USING DATA FROM THE LONGITUDINAL STUDY OF CHILDREN AT RISK

IN PRESS, Merrill-Palmer Quarterly.

School Adjustment of Children at Risk through Fourth Grade

Arthur J. Reynolds

Yale University

Nikolaus Bezruczko

Chicago, IL

Running Head: CHILDREN AT RISK

This study was partially supported by a Prevention Research Training grant (T32 MH18920) from the National Institute of Mental Health. Thanks go to the Department of Research, Evaluation and Planning of the Chicago Public Schools for cooperation in data collection and organization. An earlier version of this paper was presented at the 1991 biennial meeting of the Society for Research in Child Development, Seattle, WA. Address correspondence concerning this article to Arthur J. Reynolds, Department of Human Development and Family Studies, Pennsylvania State University, University Park, PA 16802.

Abstract

Social psychological predictors of early school adjustment were tested with a panel of 1255 low-income mostly black children. Using longitudinal data collected from parents, teachers, and children, the model examined cognitive achievement in reading, teacher ratings of school progress, child perceptions of school competence, and grade retention. Results indicated that children's school adjustment from kindergarten to Grade 4 is marked by declining achievement, frequent school moves, and increasing grade retention. Regression analyses indicated that cognitive readiness and the early adjustment indicators of Grade 1 reading achievement and teacher ratings were significantly related to Grade 4 outcomes and substantially mediated the effects of preschool participation and family background measures. The school life-event of grade retention had a strong negative effect on achievement after adjusting for the effects of prior measures including initial achievement. Parent involvement in school was positively related to achievement and teacher ratings of school progress.

School Adjustment of Children at Risk through Fourth Grade

School adjustment is a process of multiple and complex influences. Early school adjustment, from kindergarten through the primary grades, is no different and may be even more critical since the initial transition to schooling may substantially affect later experiences both in and outside of school. Yet an understanding of early adjustment of children at risk is only beginning to emerge. The purpose of this study, using data from the Longitudinal Study of Children at Risk, is to trace multiple influences on children's school adjustment from preschool to Grade 4. In this paper, risk is defined as sociocultural risk or the "impoverishing of the child's world so that the child lacks the basic social and psychological necessities of life" (Garbarino, 1982, p. 32). Children's primary risk factor is poverty which leaves them vulnerable to associated developmental problems.

Children at risk of low academic achievement and school failure are of great concern to educators, researchers, and policy makers alike because they, more than other children, have the most to lose from poor school adjustment (Walberg & Tsai, 1983). The increasing prevalence of children at risk makes their potential problems even more troublesome since the number of children living in poverty increased 26% from 1985 to 1989 (Center for the Study of Social Policy, 1991). Moreover, projections into the next century indicate continued growth of children in poverty, leaving nearly five million more children in poverty in 2020 than in 1987 (Natriello, McDill, & Pallas, 1990).

This trend has costs not only to children themselves but to the educational and social institutions which serve them. For example, the greater prevalence of children at risk almost certainly would lead to increased expenditures for educational programs since many of these children would lack adequate readiness skills. Moreover, greater numbers of at-risk children have social and economic costs since at-risk children are more likely to drop out of school, which is associated with

unemployment, delinquency, crime, and welfare dependency (Steinberg, Blinde, & Chan, 1984). Identifying and understanding the factors that affect their early school success may not only shed light on improving their adjustment but help prevent future problems of children as well as the institutions which serve them.

Previous studies have aptly demonstrated that no single factor is responsible for shaping children's school adjustment. Rather, adjustment is most accurately viewed as a function of mediated effects whereby intervening experiences transmit the effects of various "intake" characteristics which may include sociodemographic or "readiness" attributes such as parental education, socioeconomic status, preschool experience, and cognitive preparedness. Thus, school adjustment is dependent on many factors that interact in complex ways over time. Studies with at-risk children have found that social-psychological factors play a significant role in early success including, cognitive readiness at school entry (Berrueta-Clement, Schweinhart, Barnett, Epstein, & Weikart, 1984; Reynolds, 1989, 1991), teacher ratings of school progress (Berrueta-Clement et al., 1984; Lazar & Darlington, 1982; Reynolds, 1989, 1991), home environmental conditions (Slaughter & Epps, 1987; Clark, 1983), school mobility (Felner, Primavera, & Cauce, 1981; Levine, Wesolowski, & Corbett, 1966; Reynolds, 1989, 1991), and parent involvement in school (Reynolds, 1989; Stevenson & Baker, 1987). Such mediating influences are consistent with structural models of the early schooling process (Alexander & Entwisle, 1988; Entwisle, Alexander, Cadigan, & Pallas, 1987; Entwisle & Hayduk, 1982).

The importance of the intervening home, school, and social context in early school adjustment is no more apparent than in studies of the effects of preschool intervention programs. The well-known findings of the Consortium of Longitudinal Studies (Lazar & Darlington, 1982) as well as the Perry Preschool Program (Berrueta-Clement et al., 1984) suggest that participation in preschool programs improves cognitive achievement

only to the extent that it improves children's cognitive readiness on school entry, is reinforced by positive teachers ratings after the cessation of preschool, and reduces the likelihood of grade retention and placement in special education classrooms. Reynolds (1992), investigating the impact of a government-funded preschool program for low-income, minority children in Chicago, also found that preschool participation by itself was relatively unimportant in cognitive achievement and grade retention by Grade 3 but depended on the degree to which children began school cognitively ready, their Grade 1 teachers rated them well-adjusted, and their parents were involved in school after the cessation of preschool. For example, children who participated in at least one year of preschool and whose parents were involved in their education were more likely to perform better in school than children who had preschool but whose parents were not so involved. Moreover, school mobility and grade retention contributed significantly to year 3 achievement as well as played indirect roles in the transmission of preschool effects. These studies support the view that preschool as well as school adjustment generally is dependent on the social context children enter subsequent to preschool (Woodhead, 1988).

The above studies support the importance of models of the early schooling process with at-risk children and the value of capturing mediating effects of variables over time. However, the validity of these studies depends on the consistency of results over time and across contexts, both of which have not been extensively investigated due to the preliminary and evolving nature of studies to date. For example, the stability of effects of parent involvement and school mobility must be verified and greater consensus about the most critical components of the early school process must be achieved (Reynolds, 1989, 1991). Also, many previous studies of the early schooling process use cognitive achievement as the primary outcome, yet early school adjustment denotes multiple outcomes that may best be viewed under the concept of competence

(Sternberg & Kolligian, 1991; Zigler & Trickett, 1978). This broader conceptualization of adjustment, reported from multiple sources, considers social, affective, and cognitive factors as equally important outcomes. Furthermore, it is important for models to take account of major transitional periods in early school adjustment such as the transition to full-time schooling in kindergarten and first grade (Alexander & Entwisle, 1988) and beginning reading instruction (Chall, Jacobs, & Baldwin, 1990), which are watersheds in academic and social development. Particularly useful are longitudinal studies that trace the adjustment of the same individuals continuously through these major transitional periods.

The present study builds upon the above issues by testing a continuous longitudinal model of early school adjustment. The model is designed to better understand the factors that influence a wide range of early school outcomes including, cognitive readiness on school entry, cognitive and teacher-rated adjustment in Grade 1, and four measures of school competency in Grade 4: grade retention, cognitive achievement in reading, teacher ratings of school adjustment, and child perceptions of school competence.

A General Model of School Adjustment Through Grade 4

Evolved from good-fitting structural models of the early academic and social adjustment with children participating in the Longitudinal Study of Children at Risk in Grades 1 to 3 (Reynolds, 1989, 1991, 1992), a sequential model of school adjustment will be tested in this study. It has four components that are temporal in sequence.

A. Readiness Attributes or school entry characteristics including the sociodemographic factors of gender, age at school entry, parent education, family income, school socioeconomic status, preschool experience, and cognitive readiness.

B. Early Adjustment Indicators in kindergarten and Grade 1 including pre-reading achievement, Grade 1 reading achievement, and Grade 1 teacher ratings of school adjustment.

C. Intervening Experiences in Grades 2 to 4 composed of family and school support factors and exposure to school life events,

including school mobility, grade retention, and special education placement.

D. School Adjustment at Grade 4 including cognitive achievement in reading, teacher ratings, and child perceptions of school competence.

Informed by social psychological theories of development (Bloom, 1976; Bronfenbrenner, 1979; Magnusson, 1981; Walberg, 1981), the basis of this recursive model is that school adjustment is a series of mediated effects of individual, family, and school-based factors which provide the social context of adjustment. The model is designed to answer four major questions of early school adjustment. (a) Which factors predict children's cognitive readiness on school entry? (b) Which factors are associated with early school adjustment in Grade 1? (c) What is the degree to which intervening support-based and school life-events influence Grade 4 outcomes over and above that of early indicators of school adjustment? (d) What are the primary links between these important periods of schooling?

Readiness attributes include sex, age, participation in government-funded preschool programs (Head Start or a similarly designed Child-Parent Center [CPC] program), school socioeconomic status (SES), and two family background attributes: parent education, and socioeconomic status as indicated by a child's eligibility for free lunch. All have been associated with cognitive and affective outcomes of schooling (Bloom, 1976; Reynolds, 1991; White, 1985-1986). They are expected to predict cognitive readiness on school entry, a consistent and enduring correlate of later school outcomes (Butler, Marsh, Sheppard, & Sheppard, 1985; Reynolds, 1991).

Among the early adjustment indicators, pre-reading achievement at the end of kindergarten is expected to be linked to the Grade 1 outcomes of reading achievement and teacher ratings of adjustment. Initial reading achievement in Grade 1 is an important watershed in children's early schooling that may substantially predict later school success in

reading and other subjects (Chall, Jacobs, & Baldwin, 1990; Juel, 1988; Stanovich, 1986). Teacher ratings of school adjustment in early schooling have shown to be power influences on later school success (Entwisle & Hayduk, 1988; Berrueta-Clement et al., 1984). Both factors were expected to mediate the effect of readiness attributes on Grade 4 outcomes.

Intervening experiences are divided into two categories. Support-based factors enhance or support children's learning. These include parent involvement in school activities in Grade 2, children's literacy activities at home and in school, and the provision of follow-up in intervention services after kindergarten. Previous studies, for example, have found that parent involvement in school activities as reported by teachers is significantly related to children's achievement as well as teacher ratings of school adjustment (Reynolds, 1991; Stevenson & Baker, 1987). Children's literacy attitudes and behaviors may also enhance adjustment. Snow, Barnes, Chandler, Goodman, & Hemphill (1991), for example, found that the home literacy environment of low-income families, measured by the conduct of educational activities (e.g., reading) and provision of learning materials (e.g., books) was positively and significantly related to children's vocabulary and word meaning scores. Although other studies are equivocal on the effects engagement in and provision of literacy activities for at-risk children (e.g., Beal, Breglio, & Hinckley, 1979; Tizard, Blatchford, Burke, Farquhar, & Plewis, 1988), additional studies are needed to clarify the state of knowledge.

In contrast, school life-events denote factors that potentially disrupt children's school adjustment. These include school mobility, special education placement, and grade retention. The negative effect of grade retention on later cognitive achievement, for example, has been a consistent finding of previous research (Holmes, 1989). School mobility (Felner, Primavera, & Cauce, 1981; Levine, Wesolowski, & Corbett, 1966; Reynolds, 1989, 1991) and special education placement (Lazar & Darlington, 1982) have also been linked to school maladjustment. These

life-events are posited to have negative influences on early school adjustment.

The sequencing of the factors, with the exception of family background attributes, is based on the time period in which they were measured, taking advantage of the longitudinal design. Readiness attributes, for example, causally precede other factors on conceptual and temporal grounds because their influence is exerted well before kindergarten. Likewise, early adjustment indicators, measured in kindergarten and Grade 1, influence intervening experiences and Grade 4 outcomes. Moreover, school mobility and special education placement were measured at the end of Grade 2, one year prior to grade retention. Consequently, both are expected to influence grade retention rather than the reverse. Because the intervening factors of support-based factors and school life-events were measured at approximately the same time, no causal direction was hypothesized between these blocks.

The major hypothesizes of the model were as follows: Preschool participation, especially CPC preschool will show its greatest effect on cognitive readiness. Parent education and SES (measured by children's eligibility for a lunch subsidy) will also significantly influence cognitive readiness. Grade 1 adjustment measures will be influenced by prior cognitive measures, especially pre-reading achievement, cognitive readiness, family background, and preschool participation. Both support-based factors and school life-events will substantially mediate the effects of early school outcomes and readiness attributes. However, the school life-events of grade retention and school mobility will be more strongly related to Grade 4 adjustment outcomes.

Method

Sample

Children in this study are part of the Longitudinal Study of Children at Risk, an on-going investigation tracing the school adjustment of an initial panel of 1539 children in the Chicago Public Schools

(Reynolds, Hagemann, Bezruczko, & Mavrogenes, 1991). These low-income, mostly black children enrolled in one of four government-funded kindergarten programs in the Chicago Public Schools in the fall of 1985. Included are all children in Chapters 1 and 2 CPCs that have kindergarten, all children in Chapter 2 all-day kindergarten programs, and a random sample from 6 schools in the Chicago Effective Schools Project (CESP), a local kindergarten program. CPCs provide comprehensive, language-based preschool programs for low-income children with educational need and have demonstrated successful implementation (Chicago Public Schools, 1987). In the spring of 1990, most children were in Grade 4 (because many children were retained, year in school is a better descriptor than grade level; for clarity, however, grade level will be used). By definition, the sample represents a large proportion of children in government funded early childhood programs, thus fairly well represents children at risk due to poverty in Chicago and probably other large metropolitan school districts.

Insert Table 1 about here

Table 1 provides a description of sample characteristics of 1255 (80% of the original sample) children who remained in the school system in Grade 4 (the 1989-1990 school year) and who spent at least three years in the Chicago Public Schools from kindergarten to Grade 4. The sample retention rate of 80% is high given that the typical rate over three waves is about 50% (Kessler & Greenberg, 1981). The analyses reported in this study are based on this sample of 1255 children, which is similar to the original sample on nearly all characteristics. To obtain the final sample, missing data on test scores were imputed for some cases.[1] The data reported in Table 1 were collected from school records and parent surveys mailed in spring of Grade 2 (1988) and Grade 4 (1990).

As shown in Table 1, the children are at multiple risk for school difficulties. All children are ethnic minority and attended kindergarten schools in poverty neighborhoods. Over 90% of the surveyed parents reported their child was eligible for a partial or full lunch subsidy. A substantial number of parents (41%) reported that they did not graduate from high school, although, because of missing data and unreliability of parent reports, this may be a conservative estimate. However, there were few observed differences in outcomes between children whose parents were missing and not missing on parent education. Also, note that a substantial number of children (70%) attended government-funded preschool in Chicago.

Measures

A description of the measures is provided in Table 2. They include preschool enrollment through the Grade 4 outcomes of cognitive achievement in reading, teacher ratings of children's school adjustment, and child self-perceptions of school competency. Reading achievement was measured by the Iowa Tests of Basic Skills (ITBS; Hieronymus & Hoover, 1990) which has demonstrated high reliability and predictive validity (Hieronymus & Hoover, 1990). Scores are reported in equal-interval logit values based on one-parameter item response theory methods.[2] Teacher ratings of school adjustment came from a reliable (alpha = .94), six-item scale administered in the spring of 1990. Self-perceptions of school competency were indexed by 12 items administered to children the spring of Grade 4. Derived from principal components analysis, the scale had acceptable internal consistency reliability (alpha = .75). A fourth but secondary measure of school adjustment was cumulative grade retention, defined as children who were not at their expected grade level (Grade 4) during the 1989-90 school year. Thus, they were retained in kindergarten through Grade 3. Only 1% of the sample was retained in kindergarten.

Insert Table 2 about here

Readiness attributes include sociodemographic factors of sex and age at entry in kindergarten. The family variables include parent education (high school graduate or not), and an ordinal indicator of family income, children's eligibility for a federal lunch subsidy. Both were obtained in grades 2 and 4 through parent survey questionnaires. Although these socioeconomic variables were measured after children's school entry, they were expected to be fairly stable indicators, especially given the sample's at-risk status. Because of substantial missing data on parents education and income, a missing-data dummy variable was created to test for nonresponse bias. School SES in kindergarten was included as a measure of the socioeconomic context of the kindergarten school and the likely area where a child has grown up. Two measures of preschool participation were included; enrollment in CPC preschool programs and enrollment in Head Start. Most of the children in this sample had CPC preschool. It should be noted that parental marital status, surveyed in Grade 4, was not included as a primary variable due the small number of parents who provided this data (n = 492) and that it added no explanatory power above and beyond other variables. The final readiness factor is cognitive readiness on school entry often called "developmental preparedness." It was reliably measured by the Iowa Tests of Basic Skills (alpha = .94; Hieronymus, Lindquist, & Hoover, 1980a).

Also reported in Table 2 is a measure of pre-reading achievement which is based on the word analysis subtest of the ITBS (Hieronymus, Lindquist, & Hoover, 1980a). Grade 1 outcomes include baseline reading achievement from the ITBS (Hieronymus, Lindquist, & Hoover, 1980b) and teacher ratings of children's school adjustment; both are conceptually similar to their respective Grade 4 outcomes. The intervening support-based factor of follow-up services was the number of years children

received extra services in their kindergarten CPC, including reduced class size, extra supplies for books, and a teacher aide for each class. Parent involvement in school activities was assessed by Grade 2 teachers, independent of all other teacher measures. Children's literacy orientation, self-reported in the spring of Grade 3, measured their engagement in and attitudes toward literacy activities in and outside of school (e.g., "I read at home", "I write notes to my friends and family"). The scale, derived from principal components analysis had a moderately high internal consistency reliability (alpha = .60). The final measures, school mobility and special education placement were collected prior to Grade 4.

Results

Means and standard deviations of the outcome and explanatory factors are shown in Table 2. Correlations between the explanatory variables and the adjustment outcomes are shown in Table 3 (Contact the authors for the complete correlation matrix). Several predictors were consistently correlated with Grade 4 outcomes. These included cognitive readiness, pre-reading achievement, Grade 1 adjustment measures, and parent involvement in school at Grade 2, and grade retention. As expected, Grades 1 and 4 reading achievement and Grades 1 and 4 teacher ratings, were substantially correlated (rs = .60, .46, respectively). But surprisingly, children's literacy orientation was negligibly related to Grade 4 reading achievement and to teacher ratings.

Insert Table 3 about here

Correlations among the Grade 4 adjustment outcomes were moderately high and suggested the measures tapped separate but related aspects of adjustment. These correlations are as follows: reading achievement and teacher ratings of adjustment (r = .46), teacher ratings and child

perceptions of school competence (r = .48), and reading achievement and child perceptions of school competence (r = .30).

Longitudinal analysis of reading achievement revealed that while 65% of the sample performed at or above the national average in kindergarten, only 23% of the sample performed at the national average by the end of Grade 4. Children's absolute growth in reading achievement also declined over time. Using grade equivalents, children gained approximately eight months from kindergarten to Grade 1 and from Grades 1 and 2, seven months from Grades 2 to 3, and six months from Grades 3 and 4. The median correlation of the over-time reading measures was .65. Note that this achievement pattern does not strictly support the so-called Grade 4 reading "slump" (Chall et al., 1990; Torrance, 1968), since the percentage drop from kindergarten to Grade 1 was greater than the drop from Grades 3 to 4, and the decline is continuous rather than abrupt.

Many reasons for this decline are possible. One is that the early effects on achievement of preschool and kindergarten interventions have faded, which is consistent with many previous studies (White, 1985-1986). A second possible reason for declining achievement is the school practice of grade retention. By Grade 4, 20% of the sample had been retained, over one-half (11%) in Grade 1. The substantially negative correlation between grade retention prior to Grade 4 and reading achievement at the end of Grade 4 is suggestive of potentially unintended consequences of grade retention. Finally, the instability of children's school learning environments may play a role in their relative decline in achievement over time. By Grade 4, 56% of the children had changed schools at least once since kindergarten. Moreover, these children, who began kindergarten in 26 schools, were enrolled in over 300 different schools by Grade 4.

Longitudinal patterns of teacher ratings indicate relative stability in school adjustment. These ratings are based on the sum of six identical or comparable items (using a 5-point Likert scale) for 632

children. Although mean ratings are fairly low (i.e., in the 50% ile), they were consistent over time. Mean ratings in Grades 1 to 4 were, respectively, 19.2, 19.0, 19.0 and 18.9. It should be noted, however, that teacher ratings were less stable than reading achievement, as the median correlation among ratings over time was .52. Their lower stability may reflect the dependence of ratings on the classroom context and teachers' differential interpretation of items.

As a final descriptive note, children's perceptions of their school competence were not consistent with low level of performance in reading achievement and their marginal teacher ratings of adjustment. The mean perceived competence rating of 28.7 (on a scale from 12 to 36) is much higher than would have been predicted from knowledge of their reading achievement, rate of retention, and frequency of school mobility. This finding suggests that children's perceptions of competence, at least in Grade 4, are not affected by their school performance.

Regression Analyses

Hierarchical multiple regression analysis was used to determine the contribution of variables to the school adjustment model (using pairwise-present cases for the non-achievement factors). As shown in Table 4, the explanatory variables contributed in diverse ways to the explanation of variances in the outcomes. The readiness attributes showed their greatest influence on school entry cognitive readiness. Over time, however, intervening school experiences substantially mediated the effects of readiness attributes. Further note that the influence of missing parent data was relatively small. It was significant in only two of the seven models estimated.

The results summarize the four major questions discussed in the beginning of the paper. Which factors contribute to children's cognitive readiness? Which factors predict cognitive and affect adjustment in Grade 1? How can variation in Grade 4 outcomes be best explained? How can the trends across time be best described?

Insert Table 4 about here

Cognitive Readiness. There were a number of significant predictors of cognitive school readiness, among them participation in CPC preschool programs (b = .24), age at school entry (b = .21) as well as parent education (b = .17), and eligibility for free lunch (a measure of SES; b = .15). All of these were in the expected direction. That CPC preschool's greatest direct effect was short-term is consistent with many previous studies (Haskins, 1989; White, 1985-1986). The negligible effect (although in the expected direction) of participation in Head Start preschool illustrates that substantial effects of preschool on child outcomes are not inevitable but depend of program implementation and quality.

Grade 1 Reading Achievement. Initial reading achievement is an important outcome for children at risk because it helps set the stage for performance in school as well as later school adjustment. As expected, earlier cognitive factors had the greatest influence on initial reading achievement including, pre-reading achievement at the end of kindergarten (b = .38) and cognitive readiness at school entry (b = .22). That cognitive readiness continued to exert a strong influence on early primary-grade achievement illustrates its unique contribution to school success. Other notable findings included the positive effects of CPC preschool participation and sex (in favor of girls) over and above that of other factors. Again, Head Start participation was negligibly related to achievement.

Grade 1 Teacher Ratings of Adjustment. As with reading achievement, prior cognitive measures had the greatest influence on this affective outcome. However, some differences emerged. Sex (in favor of girls) contributed more to teacher ratings of school adjustment than to achievement. Preschool participation (CPC and Head Start) did not

influence teacher ratings, nor did family background characteristics. These results suggest that teacher ratings of school adjustment depend predominantly on physical (i.e., sex) and cognitive factors (i.e., achievement).

Grade Retention (by Grade 4). Although considered in this study as a predictor of Grade 4 adjustment outcomes, grade retention may also be considered as a indicator of adjustment. Three explanatory variables significantly predicted grade retention: teacher ratings of progress, cognitive readiness, and school mobility. Surprisingly, family background attributes and Grade 1 achievement did not significantly contribute to retention. Evidently, teacher judgements play a much greater role than achievement per se, although the high correlation between teacher ratings and Grade 1 achievement (r = .60) may have reduced the achievement-retention relationship. The influence of school mobility indicates that children who change schools are more likely to be retained in grade. This is consistent with the notion that school mobility represents an environmental disruption that may, at least in the short-term, contribute to school maladjustment since children must adapt to new schools, new teachers, and new friends. It is notable that the effect of mobility was above and beyond that which could be explained by sociodemographic factors including, parent education, socioeconomic status, and school SES. This result supports the unique and positive influence of changing schools on grade retention. However, the effect of mobility may vary as a function of unmeasured factors such as the distance moved and the reason for moving.

Grade 4 Reading Achievement. As shown in Table 4, a substantial amount of variation in reading achievement (R^2 = .55) was explained by the variables in the model. It should be noted that since initial reading achievement was entered in the model, coefficients are directly interpretable as explaining growth in reading achievement. The major result of the model is the substantial negative effect of grade retention

(b = -.33) on reading achievement in Grade 4, which is larger than the effect of initial reading achievement in Grade 1. This coefficient represents a difference of nearly one (.82) standard deviation between ever-retained and continuously promoted children. Moreover, because the observed effect of retention on later achievement takes into account initial differences among students such as age, family background, teacher ratings, and initial achievement, it is unlikely that selection artifacts inflated the retention effect.

Cognitive readiness, Grade 1 reading achievement and teacher ratings, parent involvement, and age (in favor of younger children) also contributed significantly to growth in reading. The effects of program follow-up services, school mobility, and child literacy orientation were surprisingly negligible. The difficulty in separating exposure to follow-up services from school mobility may have contributed to the lack of effects of both factors since the number of years in the CPC follow-up programs is inversely related to school mobility (r = -.53). However, separate estimation of their effects did not change the results presented here.

Grade 4 Teacher Ratings of Adjustment. The differential effects of the predictors were evident in explaining growth in teacher-rated adjustment. Unlike the results for achievement, grade retention had no effect on teacher ratings of adjustment. Also, sex (in favor of girls), school SES, and Head Start preschool participation significantly influenced growth in ratings. The latter two effects, however, were in the opposite direction expected, which may be the result of regression to the mean since children in low-SES schools and who did not have preschool are likely to be initially rated lower than their peers. As with achievement, Grade 1 reading achievement and teacher ratings, and parent involvement in school had significant positive influences.

Grade 4 Perceived Competence. Only prior measures of achievement and teacher ratings explained variation in perceived competency, which

illustrates that children's perceptions of competence are dependent on their initial school success and teacher perceptions of children's progress. The lack of effects of other factors and the low explanatory power of the model (R^2 = .133) may be due to the low variation in child perceptions of school competence (See Table 2). Surprisingly, most children's perceptions of school competence were quite high.

Summary of Variance Contributions

Table 5 summarizes the results of the hierarchical regression analysis for the three measures of school adjustment plus grade retention. Results indicate that substantial amounts of variance in the outcomes are explained by mediating factors above and beyond that of readiness attributes. This was especially apparent for cognitive growth (growth because Grade 1 reading scores were controlled) in reading whereby 74% (14% / 19%) of the growth-related variance was attributable to the intervening factors of teacher ratings, support-based factors, and school life-events. The life event of grade retention, however, contributed the most independent variance. Grade retention and child perceptions of competence were also substantially mediated by Grade 1 and intervening factors. One exception to this trend was teacher ratings of school adjustment as support-based and school life-event mediators contributed very little to its prediction over and above readiness attributes.

Insert Table 5 about here

Discussion

Although the magnitude of effects varied by outcomes, these results support early school adjustment as a process of mediated effects involving individual, family, and school-based factors. Findings are also consistent with conceptual (Bronfenbrenner, 1975; Woodhead, 1988; Haskins, 1989) and empirical specifications (Alexander & Entwisle, 1988;

Entwisle & Hayduk, 1988; Reynolds, 1991). Entwisle and Hayduk (1988), for example, found that teacher and parent ratings of children in early schooling contributed to lasting effects on school performance in middle school.

Most apparent in the present study are the continuing effects of cognitive readiness on school entry and initial cognitive and affective adjustment in Grade 1. Not only do they exert independent influences on children' adjustment but they transmit the effects of other factors, especially preschool. This latter contribution is illustrated by CPC preschool's effect on cognitive readiness and Grade 1 achievement, both of which affect Grade 4 achievement and child perceptions of school competence.

These findings illustrate the possible mechanisms through which continuity in early schooling is enhanced. Preschool intervention experiences are linked to Grade 4 achievement by cognitive readiness, Grade 1 outcomes, and grade retention. Better school adjustment is more likely if participation in preschool is followed by positive teacher ratings, higher achievement and if grade retention is avoided. Thus, successive reinforcement of positive behavior over time promotes adjustment. This multiple-influence perspective of adjustment is consistent with previous studies with this sample (Reynolds, 1989; 1991; 1992) as well as others (Berrueta-Clement et al., 1984; Lazar & Darlington, 1982). With the exception of grade retention, these mechanisms are also linked to self-perceptions of competence (see Table 4). This is the first available evidence that preschool intervention positively influences (indirectly) children's perceived competence.

Children growing up in poverty face a number of difficulties which reduce their chances for successful school adjustment. In this study, children's early school experiences were marked by declining patterns of achievement, frequent school moves, and growing incidence of grade retention. Yet many of the factors influencing their school adjustment,

objectively and subjectively measured, appear alterable in educational settings. One is grade retention. Retention was conceptualized as a life event having a potentially disruptive influence on children's adjustment by limiting their exposure to more advanced curricula and disturbing their sense of self. Its negative effect on later cognitive achievement in reading suggests that this school practice is a powerful contributor to children's declining achievement over time (See Figure 2). Although the results of this study do not prove that retaining children always causes lower achievement, they do provide a more rigorous test of the true effects of retention than many previous studies (Holmes, 1989) since the observed coefficient is adjusted for differences in family background, cognitive readiness, initial achievement, teacher ratings of school progress, and school mobility -- factors that presumably cause children to be retained. However, it should be noted that negative retention effects are not omnipresent since they did not influence teacher ratings or children's perceptions of school competency.

Another important finding of this study concerns the predictors of children's perceived competence. Results indicated that early cognitive factors (cognitive readiness and Grade 1 reading achievement) as well as teacher ratings play a role in children's perceptions of competency three or four years later. This provides further evidence of the importance of the initial transition to school in kindergarten and first grade. Although competence measures are increasingly used as important child outcomes (Sternberg & Kolligian, 1991), studies are only beginning to document the range of factors that influence them. Fewer, if any, studies have considered the perceptions of at-risk children. However, that preschool was linked to children's perceived competence indirectly through cognitive readiness and Grade 1 outcomes illustrates the importance of early school outcomes in predicting adjustment.

In conclusion, however, more questions were raised than answered in this study. While factors that contribute to school adjustment over time

were probed and linked, a number of issues deserve further study. First, children's literacy orientation had no effects on measures of adjustment. It should not be concluded, however, that engagement in literacy activities does not influence children's cognitive and affective development. The low variation in children's reports probably contributed substantially to this result. Future studies need to include measures that discriminate between high- and low-competency children through alternative measurement strategies such as interviews or reports from significant others (e.g., parents) as well as other methods (see Anderson, Wilson, & Fielding, 1988; Cunningham & Stanovich, 1991). Low variation in reports may also explain the relatively low variance explained (13%) in child perceptions of competence.

Also, the discrepancy between children's perceptions of competence and their school adjustment (measured by achievement tests and teacher assessments) suggests that preadolescent children have not yet internalized the negative consequences of school difficulties that many of them face. During the transition to middle school and adolescence, however, such perceptions appear to fade as poorly adjusted children become less engaged in school both affectively and behaviorally (Carnegie Council on Adolescent Development, 1989). Consequently, the stability of children's competence beliefs need to be monitored carefully.

Second, although mobility did influence grade retention, that it had no effect on Grade 4 achievement is not consistent with previous studies of this sample in grades 1 to 3 (Reynolds, 1989, 1991, 1992). This indicates the effects of mobility fade substantially in Grade 4. Although it is possible that children get acclimated to such frequent school moves over time, especially as they get older, the nature of this inconsistency should be further investigated. More detailed studies of the determinants of mobility and the extent to which it is independent of family economic hardship are warranted.

Finally, complementary and alternative models of social and school adjustment will be valuable to pursue in future studies. Although the model of adjustment used in this study -- an expansion of previous models of the Longitudinal Study of Children at Risk -- indicated several influences on adjustment, continued development of this model is necessary in order to unravel the complex effects of development. Social contextual models of development (Bronfenbrenner, 1979; Magnusson, 1981), which strive to characterize development as a transactional process between individuals and their proximal and distal environments, have yet to incorporate unique aspects of the social adjustment of children at risk. For example, models that take into account the multiple and frequent school transitions and negative life events at school and at home appear critical to fully understand as well as enhance the adjustment of children at risk. Especially fruitful in this endeavor will be the identification of factors that moderate or reduce the potentially harmful effects of these transitions and life events.

Footnotes

1. To be included in the final sample, the following three conditions had to be satisfied: (a) children must have a valid identification number, (b) they must have been active in the Chicago Public Schools in kindergarten, Grades 3 and 4, and (c) they could not have more than five missing test scores from kindergarten to Grade 4 (11 reading and mathematics scores were possible). Test scores of children satisfying these three conditions were imputed in the following manner. Those missing one score (reading or mathematics) within a particular year were given the value of their valid score for that year. Children missing both reading and mathematics scores for a particular year were assigned a mean subgroup value conditioned on their kindergarten program group and whether they were retained during that year. For the entering school cognitive readiness and kindergarten achievement, imputations were based on children's kindergarten program group and their parents' educational background (high school graduate or nongraduate). The number of imputations for each test score were as follows: Cognitive readiness (N = 342), Grade 1 achievement (N = 63), and Grade 4 achievement (N = 27). The only effect of the imputations was to slightly reduce the magnitude of cognitive readiness's correlation with Grade 4 outcomes (e.g., for reading achievement, from .45 to .42). These alterations did not change the results of the regression analysis.

2. Test score conversions are based on 1977-1978 norms. In the spring of 1990 the Chicago public school system began using 1988 norms in computing scores.

References

Alexander, K. L., & Entwisle, D. R. (1988). Achievement in the first 2 years of school: Patterns and processes. Monographs of the Society for Research in Child Development, 53(2, Serial No. 218).

Anderson, R. C., Wilson, P. T., & Fielding, L. G. (1988). Growth in reading and how children spend their time outside of school. Reading Research Quarterly, 23, 285-303.

Beal, R. S., Breglio, V. J., & Hinckley, R. H. (1979). Report #4: Student home environment, educational attainment, and compensatory education. Santa Monica, CA: Systems Development Corporation.

Berrueta-Clement, J. R., Schweinhart, L. J., Barnett, W. S., Epstein, A. S., & Weikart, D. P. (1984). Changed lives: The effects of the Perry Preschool Program on youths through age 19. Ypsilanti, MI: High/Scope.

Bloom, B. S. (1976). Human characteristics and school learning. New York: McGraw-Hill.

Bronfenbrenner, U. (1975). Is early intervention effective? In M. Guttentag & E. Struening (Eds.), Handbook of evaluation research (Vol. 2, pp. 519-603). Beverly Hills: Sage.

Bronfenbrenner, U. (1979). The ecology of human development. Cambridge, MA: Harvard University Press.

Butler, S. R., Marsh, H. W., Sheppard, M. J., Sheppard, J. L. (1985). Seven-year longitudinal study of the early prediction of reading achievement. Journal of Educational Psychology, 77, 349-361.

Carnegie Coucil on Adolescent Development (1989). Turning points: Preparing American youth for the 21st century: The report of the Task Force on education of young adolescents. Washington, DC: Author.

Center for the Study of Social Policy. (1991). Kids count data book. Washington, DC: Author.

Chall, J. S., Jacobs, V. A., & Baldwin, L. E. (1990). The reading crisis: Why poor children fall behind. Cambridge, MA: Harvard University Press.

Chicago Public Schools. (1987). Chapter 2 all-day kindergarten program final evaluation report: Fiscal 1986. Chicago: Department of Research and Evaluation: Author.

Clark, R. M. (1983). Family life and school achievement: Why poor black children succeed or fail. Chicago: University of Chicago Press.

Cunningham, A. E., & Stanovich, K. E. (1991). Tracking the unique effects of print exposure in children: Associations with vocabulary, general knowledge, and spelling. Journal of Educational Psychology, 83, 264-274.

Entwisle, D. R., Alexander, K. L., Cadigan, D., & Pallas, A. M. (1987). Kindergarten experience: Cognitive effects or socialization? American Educational Research Journal, 24, 337-364.

Entwisle, D. R., & Hayduk, L. A. (1982). Early schooling: Cognitive and affective outcomes. Baltimore: Johns Hopkins University Press.

Entwisle, D. R., & Hayduk, L. A. (1988). Lasting effects of elementary school. Sociology of Education, 61, 147-159.

Felner, R. D., Primavera, J., & Cauce, A. M. (1981). The impact of school transitions: A focus for preventive efforts. American Journal of Community Psychology, 9, 449-459.

Garbarino, J. (1982). Children & families in the social environment. New York: Aldine.

Haskins, R. (1989). Beyond metaphor: The efficacy of early childhood education. American Psychologist, 44, 274-282.

Hieronymus, A. N., & Hoover, H. D. (1990). Iowa Tests of Basic Skills: Manual for school administrators (Supplement). Chicago: Riverside.

Hieronymus, A. N., Lindquist, E. F., & Hoover, H. D. (1980a). Iowa Tests of Basic Skills: Early primary battery. Chicago: Riverside.

Hieronymus, A. N., Lindquist, E. F., & Hoover, H. D. (1980b). Iowa Tests of Basic Skills: Multilevel battery. Chicago: Riverside.

Holmes, C. T. (1989). Grade level retention effects: A meta-analysis of research studies. In L. A. Shepard and M. L. Smith (Eds.), Flunking

grades: Research and policies on retention (pp. 16-33). New York: Falmer Press.

Juel, C. (1988). Learning to read and write: A longitudinal study of 54 children from first through fourth grades. Journal of Educational Psychology, 80, 437-447.

Kessler, R. C., & Greenberg, D. F. (1981). Linear panel analysis: Models of quantitative change. New York: Academic Press.

Lazar, I., & Darlington, R. (1982). Lasting effects of early education: A report from the consortium for longitudinal studies. Monographs of the Society for Research in Child Development, 47(2/3, Serial No. 195).

Levine, M., Wesolowski, J. C., & Corbett, F. J. (1966). Pupil turnover and academic performance in an inner city elementary school. Psychology in the Schools, 3, 153-158.

Magnusson, D. (Ed.). (1981). Toward a psychology of situations: An interactional perspective. Hillsdale, NJ: LEA.

Natriello, G., McDill, E. L., & Pallas, A. M. (1990). Schooling disadvantaged children: Racing against catastrophe. New York: Teachers College Press.

Reynolds, A. J. (1989). A structural model of first-grade outcomes for an urban, low socioeconomic status, minority population. Journal of Educational Psychology, 81, 594-603.

Reynolds, A. J. (1991). Early schooling of children at risk. American Educational Research Journal, 28, 392-422.

Reynolds, A. J. (1992). Mediated effects of preschool intervention. Early Education and Development, 3, 139-164.

Reynolds, A. J., Hagemann, M., Bezruczko, N., & Mavrogenes, N. A. (1991, April). Multiple influences on early school adjustment: Results from the Longitudinal Study of Children at Risk. Symposium presented at the annual meeting of the American Educational Research Association, Chicago.

Slaughter, D. T., & Epps, E. G. (1987). The home environment and academic achievement of black American children and youth: An overview. Journal of Negro Education, 56, 3-20.

Snow, C. E., Barnes, W. S., Chandler, J., Goodman, I. F., & Hemphill, L. (1991). Unfulfilled expectations: Home and school influences on literacy. Cambridge, MA: Harvard University Press.

Stanovich, K. E. (1986). Matthew effects in reading: Some consequences of individual differences in the acquisition of literacy. Reading Research Quarterly, 21, 360-407.

Steinberg, L., Blinde, P. L., & Chan, K. S. (1984). Dropping out among language minority youth. Review of Educational Research, 54, 113-132.

Sternberg, R. J., & Kolligian, J. (Eds.). (1991). Competence considered. New Haven, CT: Yale University Press.

Stevenson, D. L., & Baker, D. P. (1987). The family-school relation and the child's school performance. Child Development, 58, 1348-1357.

Tizard, B., Blatchford, P., Burke, J., Farquhar, C., & Plewis, I. (1988). Young children at school in the inner city. Hillsdale, NJ: Lawrence Erlbaum.

Torrance, E. P. (1968). A longitudinal examination of the fourth grade slump in creativity. Gifted Child Quarterly, 12, 195-199.

Walberg, H. J. (1981). A psychological theory of educational productivity. In F. H. Farley and N. Gordon (Eds.), Psychology and education (pp. 81-110). Chicago: National Society for the Study of Education.

Walberg, H. J., & Tsai, S. (1983). Matthew effects in education. American Educational Research Journal, 20, 359-373.

White, K. R. (1985-1986). Efficacy of early intervention. Journal of Special Education, 19, 401-416.

Woodhead, M. (1988). When psychology informs public policy: The case of early childhood intervention. American Psychologist, 43, 443-454.

Zigler, E., & Trickett, P. K. (1978). IQ, social competence, and evaluation of early childhood intervention programs. American Psychologist, 33, 789-798.

Table 1

Sample characteristics for the Longitudinal Study of Children at Risk (N = 1255)

Characteristic	Percent		Sample size
Race/ethnicity	95%	Black	1191
	5%	Hispanic	60
Gender	51%	girls	640
	49%	boys	615
Age at kindergarten entry	26%	Up to 60 months	325
	74%	More than 60 months	906
School SES in kindergarten	100%	poverty-designated neighborhoods (range = 45-86% low-income)	1255
Parent education	59%	high school graduate	430
	41%	less than high school	307
Eligibility for federal lunch subsidy	85%	full subsidy	629
	8%	partial subsidy	61
	6%	no subsidy	47
Missing parent education/lunch subsidy	41%	not known	518
	59%	known	737
Number of siblings	18%	none	188
	54%	1-3	573
	28%	4-6	296
Preschool experience	70%	CPC or Head Start	873
	30%	none	382
Program participation	44%	Ch 1 CPC	551
	21%	Ch 2 CPC	257
	10%	Ch 2 Home School	130
	25%	CESP	317

Note. Ns may not add up to 1255 due to missing data.

Table 2

Variable definitions, means, and standard deviations for the explanatory model

Variable	Definitions	M	SD
	Grade 4 Outcomes		
Cognitive achievement in reading	ITBS reading comprehension subtest Level 10 in logits	-1.57	1.16
Teacher ratings of school adjustment	Sum of six 5-point teacher rated items: Concentrates on work, Follows directions, Is self-confident, Participates in group discussions, Gets along well with others, and Takes responsibility for actions	18.93	5.40
Perceived school competence	Sum of 12, 3-point self-rated items: I get good grades in school, My classmates like me, I get in trouble at school, I get along well with others, I do my homework, I answer questions in class, I give up when school work gets hard, When I get bad grades I try even harder, I try hard in school, My teacher thinks I will go far in school, I am smart, I do better in school than my classmates	28.71	4.10
	Explanatory Variables		
Readiness Attributes			
Sex	1 = girls, 0 = boys	.51	.50
Age at school entry	in months	63.41	3.73
Parent education	1 = high school graduate, 0 = < high school	.58	.49
Eligibility for free lunch	3 = no subsidy, 2 = partial subsidy, 1 = none	1.21	.54
Missing parent education or eligibility for free lunch	1 = missing, 0 = not missing	.41	.49
School socioeconomic status	Percentage of families in school region who are not low-income (in Kindergarten)	33.21	9.44
Child-Parent Center preschool	1 = CPC preschool, 0 = otherwise	.64	.48
Head Start preschool	1 = Head Start, 0 = otherwise	.06	.23
Cognitive readiness	Cognitive readiness on school entry, ITBS Level 5 in logits	-6.38	.84
Early Adjustment Indicators			
Early reading achievement	End-of-kindergarten word analysis skills ITBS Level 5 in logits	-5.00	.87
Grade 1 reading achievement	Baseline measure of reading comprehension ITBS Level 7 in logits	-4.06	1.13
Grade 1 teacher ratings of school adjustment	Sum of six, 5-point items about children's adjustment: Came to class ready to learn, completes work according to instructions, complies with classroom rules, displays confidence in approaching learning tasks, participates in group discussions, and works and plays well with others	19.21	5.80
Intervening Experiences			
Support-based factors			
Follow-up services	Number of years receiving CPC follow-up services including extra funds for supplies and teacher aides in grades 1 through 3	1.23	1.20
Parent involvement in school	Grade 2 Teacher rating: 5 = excellent/much, 1 = poor/not at all	2.64	1.21
Child literacy orientation	Sum of six 3-point self-rated items: I like to write stories, I like to read, I like science, I talk about school at home, I write notes to my friends or family, and I read at home	13.36	2.52
School life-events			
School mobility	Number of school moves from kindergarten to grade 3	.69	.87
Special education placement	Placed in special education in grades 1 to 3	.08	.27
Grade retention	Retained in kindergarten, grade 1, grade 2, or grade 3	.20	.40

Note. ITBS = Iowa Tests of Basic Skills.

BEST COPY AVAILABLE

Table 3

Correlations between explanatory variables and three Grade 4 adjustment outcomes

	Reading achievement	Teacher ratings	Child perceptions of competence
Readiness Attributes			
Sex (1 = girls)	.18	.22	.08
Age at school entry	.01	.02	.01
Parent education (1 = high school grad)	.18	.07	.06
Eligibility for free lunch (3 = no subsidy)	.17	.09	.07
School SES	.08	-.08	-.005
Missing parent education/ eligibility for free lunch	-.09	-.11	-.11
CPC preschool (1 = CPC)	.16	.13	.05
Head Start (1 = Head Start)	-.10	-.12	-.04
Cognitive readiness	.42	.29	.23
Early Adjustment Indicators			
Pre-reading achievement	.45	.30	.25
Grade 1 reading achievement	.60	.41	.28
Grade 1 teacher ratings	.56	.46	.29
Intervening Experiences			
Support-based factors			
Follow-up support services	.19	.13	.08
Grade 2 parent involvement	.34	.30	.18
Child literacy orientation	-.002	.02	.07
School life-events			
School mobility	-.12	-.08	-.07
Special education (1 = yes)	-.16	-.13	-.10
Grade retention (1 = yes)	-.57	-.24	-.10

Note. Values greater than .08 are significant at the .05 level.

Table 4

Regressions of Measures of School Adjustment on Readiness Attributes, Early Adjustment Indicators, and Intervening Experiences (Coefficients are standardized)

	Outcome						
	Cognitive school readiness	Grade 1 reading achievement	Grade 1 teacher ratings of adjustment	Grade retention (by Grade 4)	Grade 4 reading achievement	Grade 4 teacher ratings of adjustment	Grade 4 perceived competence
Readiness Attributes							
Sex (1 = girls)	.09*	.11*	21*	-.05	.04	.11*	.01
Age at school entry	.21*	.02	.05	.01	-.07*	-.03	-.04
Parent education (1 = grad)	.17*	.05	.01	-.03	.04	-.02	-.02
Eligibility for free lunch (3 = no subsidy)	.15*	.10*	.05	-.02	.04	.02	.02
School SES	-.04	.04	.04	.02	.05	-.12*	-.02
Missing parent education and eligibility for free lunch	-.06*	-.03	-.09*	-.01	-.02	-.04	-.07
CPC preschool (1 = CPC)	.24*	.10*	.06	.03	-.04	-.03	-.07
Head Start (1 = Head Start)	.04	-.01	.01	.05	-.03	-.10*	-.03
Cognitive readiness		.22*	.23*	-.12*	.11*	.08	.12*
Early Adjustment Indicators							
Pre-reading achievement		.38*	.26*				
Grade 1 reading achievement				-.08	.28*	.16*	.14*
Grade 1 teacher ratings				-.29*	.17*	.26*	.18*
Intervening Experiences							
Support-based factors							
Follow-up support services				-.04	.03	.04	.03
Grade 2 parent involvement				-.04	.06*	.13*	.06
Child literacy orientation				.06	.01	-.01	.06
School life-events							
School mobility				.11*	.05	.03	-.01
Special education				.07	-.02	-.05	-.04
Grade retention					-.33*	.02	.09
Variance explained	.157	.378	.272	.260	.545	.294	.133

Note. Missing-data dummy variable was entered with parent education and lunch eligibility removed.
* $p < .05$.

BEST COPY AVAILABLE

Table 5

Variances explained in Grade 4 outcomes as a function of readiness and intervening factors

Predictors entered; Step:	Variance explained: Step Variance	Variance explained: Cumulative Variance
Grade 4 reading achievement		
1. Grade 1 baseline achievement	.354*	.354*
2. Readiness attributes	.055*	.409*
3. Grade 1 teacher ratings	.048*	.457*
4. Support-based mediators	.006	.463
5. School life-event mediators	.082*	.545*
Grade 4 teacher ratings		
1. Grade 1 baseline maturity	.208*	.208*
2. Readiness attributes	.049*	.257*
3. Grade 1 reading achievement	.020*	.277*
4. Support-based mediators	.015*	.292*
5. School life-event mediators	.003	.295
Grade 4 perceived competence		
1. Readiness attributes	.062*	.062*
2. Grade 1 reading achievement and teacher ratings	.056*	.118*
3. Support-based mediators	.008	.126
4. School life-event mediators	.007	.133
Grade retention (from kindergarten to grade 3)		
1. Readiness attributes	.127*	.127*
2. Grade 1 reading achievement and teacher ratings	.107*	.234*
3. Support-based mediators	.014*	.248*
4. School life-event mediators	.012*	.260*

Note. Readiness attributes = sex, age at school entry, school socioeconomic status, parental education, eligibility for free lunch, preschool participation, and cognitive readiness. Support-based mediators = follow-up services, parent involvement, and literacy activiites. School life-events = school mobility, special education placement, and grade retention. Grade retention was excluded when entered as an outcome.

* significant R^2 change at the .05 level.